

THE PATH ANALYSIS OF PERCEPTIONS OF LEARNERS' SELF-DETERMINATION IN LEARNING STRESS AND TEST ANXIETY IN JUNIOR HIGH SCHOOL

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ABSTRACT

This research is based on the self-determination theory and transactional theory of stress to segment and isolate the elements of learning stress, test anxiety, classmate relatedness, teacher relatedness, autonomy, self-regulative performance in order to analyze the relationships between stress, anxiety, performance, and social relationships. Owing to the processes of self-determination always combines several negotiations with the interactive perceptions of personal experiences and social cognition network. And the inexperience or experiences of appraisal and coping processes of stress and anxiety usually frustrate individual's learning ambition of 7th ~9th grade learners. In analysis, the percentage of participants resisted to discuss the test anxiety to individuals' teacher is 80.4% in 7th ~9th junior high school. And the percentage of sometime or never to tell the learning stress to individuals' teacher is 36.86% and 53.73%. Two hundred fifty-five students in 7th ~9th grade classes participated in a quasi-experimental study stress, test anxiety, classmate relatedness, teacher relatedness, autonomy, self-regulation performance. The results revealed differences in students' experience of the autonomy, stress, anxiety, social relatedness, and self-regulation performance in self-reported cognitive activation. Path analyses showed that the partially mediated the effects of autonomy and self-regulation performance.

KEYWORD: Self-determination, Learning Stress, Self-regulation

INTRODUCTION

The extrinsic motivation may lack of self-determination (Deci, 1985, 2000a, 2000b) in individual's behaviors. In other words, behaviors were triggered by events of key persons or environmental atmosphere. And the events may be the stresses, interests, or related subjects. Accordingly, individual's autonomy will be token ownership by somebody or events with less self-determination processes in specific behaviors. Consequently, the behaviors may not be the intentions of individual's purposes. Owing to the behaviors should be work by individuals, the intrinsic and extrinsic motivations will be the main essential issues to be discussed. Oppositely, the autonomy and self-regulation performance will be intentions by individual himself to maintain individual's ownership in the behaviors which are more internalized into the self-concept than others. Self-regulative constructs, appraisal and coping (Lazarus & Folkman, 1984), autonomy and self-regulation (Aubrey, Brown, & Miller, 1994; Brown, Miller, & Lawendowski, 1999; Pintrich, 2000; Zimmerman, 1986, 1994) performance, will be the cognitive activation and intrinsic motivation of individuals. These self-regulatory activities may mediate the relationships between individuals and the context, and their overall achievement. This definition is similar to other models of self-regulated learning (e.g., Butler & Winne, 1995; Zimmerman, 1989, 1998a, 1998b, 2000). In this research, self-regulation constructs adopts the social-cognitive perspective (classmate relatedness, teacher relatedness, and family supports) and autonomy, self-regulative performance that conceptualizes personality as the outcome of social context of self-determination theory and sensitive cognitive processes (Schwean & Saklofske, 1995). The social-regulative and self-

regulative cognition network definitions of constructs and descriptions of cognitive determinations of individuals for self-regulation that specifies how self-knowledge and social relationships influences appraisal and coping processes in stress and anxiety situations. And the social-regulative and self-regulative cognition network show that the architecture is compatible with both social-cognitive and trait perspectives. Next, we provide a general overview of empirical findings that links various traits to individual differences in self-regulative processes and performance.

Social-Regulative and Self-Regulative Cognition Network

Self-regulation and co-regulation in learning and teaching interactions will communicate and interact the competition, motivation, cognition and metacognition of individual instructors and learners which are based on sensory information and strategy modification dynamically. The active and constructive processes are the essential of self-regulation for learners and instructors to plan, monitor, and control their own learning and teaching processes (Winne & Hadwin, 1998; Zimmerman, 1990; Pintrich, 2000; Winne, 2001; Zimmerman & Schunk, 2001). Self-regulation learning can be adopted in planning, monitoring, controlling, and evaluating how to, how long, and how come individuals engage in learning situations (Thiede & Dunlosky, 1999; Karpicke, 2009; Metcalfe, 2009). Owing to learning is a complex task, several different aspects and characteristics of learners, instructors, and materials must be taken into consideration. Eight regulative constructs cover the emotion of social-regulative and self-regulative questionnaires were implemented in eight latent variables (class stress, classmate relatedness, self-regulative performance, classmate stress, autonomy, teacher relatedness, and teacher help). All scales were 4-point scales. A scale consisting of two to six items measured social-regulative and self-regulative concepts. The Cronbach's alpha internal consistency reliability was 0.88. The Cronbach's alpha internal consistency reliability coefficients for the subscales class stress, classmate relatedness, anxiety, self-regulative performance, classmate stress, autonomy, teacher relatedness, and teacher help were 0.756, 0.748, 0.698, 0.712, 0.74, 0.78, 0.921, and 0.925, respectively. Nine 7th ~9th grade classes, with a total of 255 junior high school students, participated in the study. The social-regulative objectives are divided into classmate relatedness and teacher relatedness sub-objectives for detecting individual's social relatedness. In addition, the self-regulative (self-regulative performance and autonomy) is set to scaffold and communicate the appraisal and coping processes. The functions of social-regulative and self-regulative cognition network is to realize how self-knowledge influences appraisal and coping processes.

METHOD

Social-Regulative and Self-Regulative Questionnaire

Eight regulative constructs cover the emotion of social-regulative and self-regulative questionnaire were implemented in eight latent variables (class stress, classmate relatedness, self-regulative performance, classmate stress, autonomy, teacher relatedness, and teacher help). All scales were 4-point scales. A scale consisting of two to six items measured social-regulative and self-regulative concepts. The Cronbach's alpha internal consistency reliability was 0.88. The Cronbach's alpha internal consistency reliability coefficients for the subscales class stress, classmate relatedness, anxiety, self-regulative performance, classmate stress, autonomy, teacher relatedness, and teacher help were 0.756, 0.748, 0.698, 0.712, 0.74, 0.78, 0.921, and 0.925, respectively. Nine 7th ~9th grade classes, with a total of 255 junior high school students, participated in the study. The example descriptions of the self-report: Ex_1) when the homework is too much to finish (1) I will finish all the homework till the midnight (64.52%), (2) work as much as I can today and I may work tomorrow (29.03%), or (3) do not care about it (6.45%). Ex_2) When the test scores are bad, (1) I will correct all the wrong answers immediately (48.39%), (2) correct the wrong answers another day (25.81%), (3) hide the test papers (25.81%).

RESULTS

Path Analysis

Hypotheses 1: classmate relatedness, classmate stress and autonomy were mediator class stress and self-regulative performance. In order to test these mediational hypotheses, for each of the three outcome variables a path analysis was performed. Table 1 illustrated the correlation matrix of eight constructs. In figure 2, path analyses, the fit indices were acceptable (all RMSEA < .10). In analysis, the perceptions of classmate relatedness (MateRelate), classmate stress (TestMateStress) and autonomy were mediators class stress and self-regulative performance. The direct effects of method of instruction on the outcome variables can be found in Table 2.

Table 1: Correlation Matrix for Path Analysis of Eight Construct

	Materelate	Testmatestress	Learnstress	Testaniety	Performance	Autonomy	Tearelate	Teasupport
MateRelate	1							
TestMateStress	.226**	1						
LearnStress	0.026	.147*	1					
TestAniety	0.093	0.118	-0.082	1				
Performance	.188**	.494**	0.056	0.088	1			
Autonomy	0.051	.244**	0.091	0.057	.351**	1		
TeaRelate	0.001	.134*	0.043	0.095	.203**	.331**	1	
TeaSupport	-.133*	0.007	-0.102	0.076	.180**	.323**	.620**	1

The correlations of learning stress, performance, and individual autonomy are signifigint difference with classmate stress. We may infer that the more work hard classmate existed, the more individual stress may be happened. It means that individual learner may feel stress while the classmates work hard or maintain the good performances in classroom. And the individual autonomy are correlated to the relationships and supports of instructors. We may infer that learners have more teacher supports or good relations with teacher will encourage individual to handle the learning processes and enhance his learning performances in learning processes. Figure 1 illustrates the interactions of the classmate and teacher relatedness to effect the social regulation.



Figure 1: The Classmate Relatedness, Teacher Relatedness, and Social Regulation are Interacted Each Other

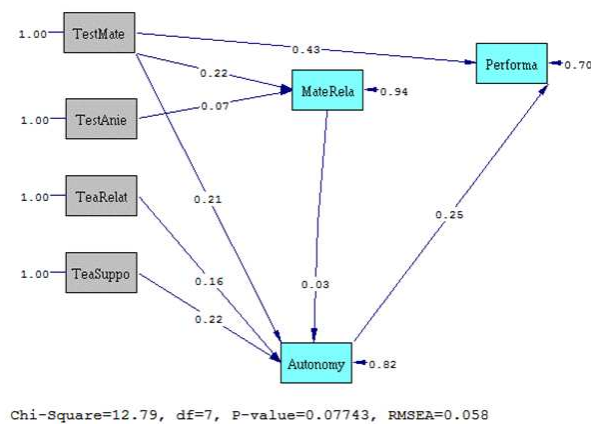


Figure 2: The Path Analysis Illustrated the Direct and Indirect Effects among the Latent Variables

Goodness of Fit Statistics are the follows: Minimum Fit Function Chi-Square = 13.90 (P = 0.053), NCP= 5.79, RMSEA= 0.058, ECVI= 0.22, NFI= 0.96, NNFI= 0.93

CFI = 0.98, CN= 338.67, GFI= 0.99, AGFI= 0.94

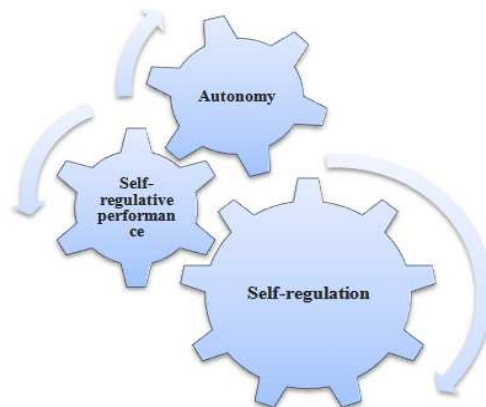


Figure 3: The Individual Autonomy, Self-Regulative Performance, and Self-Regulation are Interacted Each Other

Table 2: Correlation Matrix for Path Analysis of 26 Items Measured Social-Regulative And Self-Regulative Concepts

	v1	v2	v3	v4	v5	v6	v7	v8	v9	v10	v11	v12	v13	v14	v15	v16	v17	v18	v19	v20	v21	v22	v23	v24	v25	v26
v1	1																									
v2	.347**	1																								
v3	0.092	.148*	1																							
v4	0.117	0.126	.594**	1																						
v5	-0.074	0.02	0.105	.291**	1																					
v6	0.078	0.044	.294**	.346**	.598**	1																				
v7	0.004	.137*	.406**	.271**	0.035	.199**	1																			

v8	- 0.01	.003 4	.428**	.332**	.171*	.171*	.549**	1																		
v9	0.00 2	.005	.353**	.281**	.0056	.164*	.429**	.399**	1																	
v10	.003	.0056	.317**	.246**	.0109	.132*	.340**	.340**	.309**	1																
v11	.115	- 0.069	.0125	.148*	- 0.067	.005	.149*	.0069	.0043	.396**	1															
v12	.131*	.0085	.180**	.012	- 0.11	.0012	.229**	.0115	.0128	.376**	.645**	1														
v13	.0015	- 0.073	.149*	.0114	.0032	.150*	.354**	.231**	.258**	.364**	.440**	.490**	1													
v14	.157*	.0129	.0121	.0127	- 0.043	.0042	.179**	.187**	.166*	.284**	.382**	.461**	.413**	1												
v15	- 0.103	- 0.082	- .177**	- .184**	.0051	.0033	- .174**	- .219**	- .183**	- .344**	- .157*	- .290**	- .274**	- 0.104	1											
v16	.0068	- 0.098	- .168*	-0.1	.0007	.0024	- .181**	- .189**	- 0.112	- .306**	- .141**	- .277**	- .207**	- 0.082	.581**	1										
v17	.0036	- 0.08	.138*	.141*	.0015	.0032	.204**	.212**	.0094	.275**	.169*	.300**	.264**	.0048	.601**	.747**	1									
v18	.0064	- 0.066	- 0.12	.139*	.0103	.0064	.200**	.149*	.0094	.293**	.177**	.278**	.300**	.139*	.478**	.736**	.767**	1								
v19	.0031	- 0.096	- 0.048	- 0.012	- 0.012	.005	- 0.12	- 0.008	.0082	.217**	.0076	.215**	.246**	.0099	.547**	.694**	.689**	.658**	1							
v20	.0059	- 0.073	.0025	.0062	.0012	.0062	- .156*	- 0.092	.0026	.247**	.0111	.214**	.243**	.0057	.547**	.671**	.753**	.684**	.704**	1						
v21	.0083	.0129	- 0.031	.0007	.184**	.0085	- .169*	- .157*	.0129	.202**	.197**	.298**	.327**	- 0.12	.469**	.425**	.419**	.332**	.323**	.434**	1					
v22	.0102	.0056	- 0.006	.0015	.137*	.132*	- .158*	.0095	.0077	.225**	.192**	.298**	.290**	- 0.09	.449**	.496**	.478**	.457**	.390**	.468**	.618**	1				
v23	.0058	- 0.006	.0036	.0042	.0082	.0082	.215**	.164*	.0128	.227**	.172**	.251**	.264**	.0048	.385**	.487**	.597**	.452**	.406**	.542**	.576**	.807**	1			
v24	.011	.0087	.0016	.0038	.0002	.0079	- .167*	.0097	.0122	.175**	.209**	.253**	.304**	.0113	.309**	.415**	.476**	.600**	.392**	.436**	.468**	.753**	.774**	1		
v25	.0085	.0086	.0043	.0051	.0037	.187**	- .143*	- 0.06	.0033	.0108	.136*	.158*	.177**	- 0.01	.357**	.409**	.459**	.399**	.537**	.513**	.515**	.648**	.710**	.682**	1	
v26	.0011	.006	.0009	- 0.001	.0059	.140*	- .149*	- 0.09	.0075	.276**	.238**	.276**	.281**	.0116	.432**	.408**	.466**	.391**	.438**	.619**	.567**	.716**	.763**	.672**	.775**	1

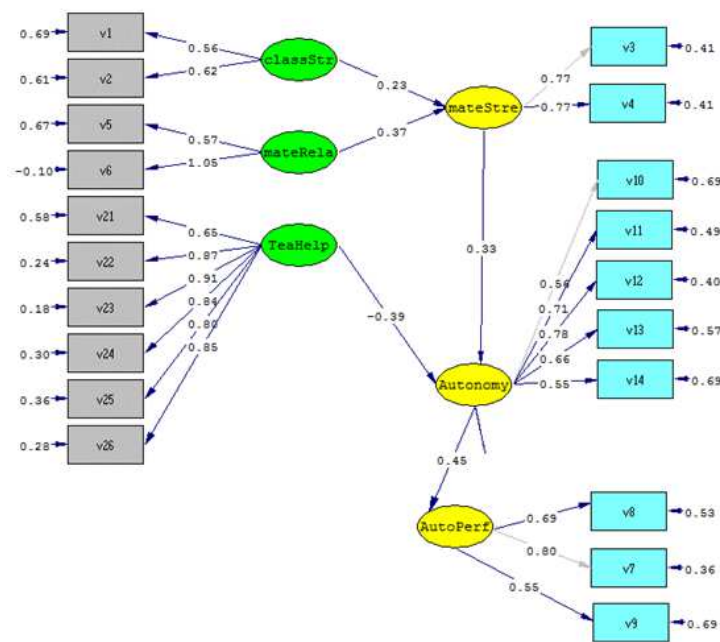


Figure 4: The Path Analysis Illustrated the Direct and Indirect Effects among the Latent Variables

In figure 4, we can see the negative coefficient between individual's autonomy and teacher help. Accordingly, we compare to the the percentage of participants resist to discuss the test anxiety to individuals' teacher is 80.4% and the percentage of sometime or never to tell the learning stress to individuals' teacher is 36.86% and 53.73%. Goodness of Fit Statistics are the follows: Degrees of Freedom = 161, Minimum Fit Function Chi-Square = 361.72 ($P = 0.0$), NCP = 200.13, RMSEA = 0.074, NFI = 0.89, NNFI = 0.92, GFI = 0.86, and AGFI = 0.82. The peer relatedness and teacher helps may make positive and negative impact on individual autonomy. It may proof the teenagers want to maintain the good relationships with peers but less anticipation to maintain good relationship with teachers.

CONCLUSIONS

The stressor may lead good or bad performances during learning processes. The peer stressor and peer interactions will be the contributors of individuals' stressors to effect on learning outcomes. And different relatedness may positive or negative to effect on individual autonomy. And the individual autonomy will have positive effect on individual's performances. We tried to refind the resources of stressors of individual learning processes. This researches want to analyze the relations among the elements of learning stress, test anxiety, classmate relatedness, teacher relatedness, autonomy, self-regulative performance, and social supports. The results revealed differences in students' experience of the autonomy, stress, anxiety, social relatedness, and self-regulation performance in self-reported cognitive activation. Path analyses showed that the partially mediated the effects of autonomy and self-regulation performance. Consequently, the self-regulation and co-regulation may be the positive reasons to enhance and support the learning processes for individuals to learn well and go further easily.

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